PROC. ENTOMOL. SOC. WASH.
109(3), 2007, pp. 721–724

NOTE

Comments on the Conservation Status of the Tiger Beetle *Cicindela ancocisconensis* T. W. Harris (Coleoptera: Carabidae: Cicindelinae)

The tiger beetle *Cicindela ancocisconensis* T. W. Harris has long been considered an uncommon species. Although this beetle was discovered about 1850 and formally named in 1852, very few specimens were known to science until the early twentieth century, when E. D. Harris (son of T. W. Harris) undertook a more systematic investigation of riparian and riverine habitats around the type locality in New Hampshire's White Mountains. Over a period of several years, Harris collected a large number of specimens of this beetle at sites in both New Hampshire and New York (Harris 1911, 1916, 1917, 1918). Some of Harris's collecting localities in New Hampshire were resurveyed by Wilson and Larochelle (1979), who likewise found the species to be abundant. These authors described the habitat conditions at the type locality (large sand bars and sandy islands on the Saco River) and summarized museum specimen records which indicated a broad but somewhat patchy distribution from Quebec south to Georgia and west to Illinois.

The first indication that this tiger beetle might be of conservation concern was a short publication by John Stamatov (1970) noting a lack of recent collections at historic sites in New York and New Hampshire. However, this note was published before the more intensive survey efforts described by Wilson and Larochelle (1979), which resulted in the discovery of large populations in the latter state. Further concerns were expressed by Graves and Brzoska (1991) in their review of the Ohio tiger beetle fauna. These authors inferred a general decline in *C. ancocisconensis* from the absence of recent records across much of its historic range, including Ohio. They recommended that any surviving populations of *C. ancocisconensis* in Ohio be considered for designation as an endangered species, and that steps be taken to protect these populations and their habitats.

Such comments helped to set the stage for conservation actions involving this tiger beetle, including its formal protection under Maryland state law (Glaser 1992, Maryland Department of Natural Resources 2003). As with other rare tiger beetles, *C. ancocisconensis* is actively tracked by the state Natural Heritage Programs throughout its range, and is currently listed as having a status of "S1" (critically imperiled within the state) in the states of Maryland, New York, Ohio, Pennsylvania, and Vermont (NatureServe 2006).

Having had recent field experiences with this species in New Hampshire and West Virginia, I suspect that it occurs at more sites within its known range than these state Natural Heritage rankings would indicate. Certain attributes of *C. ancocisconensis* suggest that this species is probably often overlooked. The adult beetles are cryptically colored and may be difficult to locate when at rest on certain sand or cobble substrates. The adults are also quite wary and, in my experience, are faster to fly when disturbed than adults of other tiger beetle species found in the same riparian habitats. Finally, adults in areas that I have surveyed tend to be found in slightly different microhabitats than adults of other sympatric riparian tiger beetles (small vegetated patches of silty

sand for *C. ancocisconensis* versus areas of open sand or cobble for *C. repanda* and *C. duodecimguttata*). Given the abundance of apparently suitable sand bar habitat within the known range of *C. ancocisconensis*, and the relatively small number of experienced workers who have actively searched for this beetle, there is a strong possibility that many more populations await discovery.

In September, 2004, and May, 2006, I searched for *C. ancocisconensis* at sites in New Hampshire. I found adults to be common and occasionally even abundant at multiple localities along both the Saco and Ammonoosuc rivers in the White Mountains. On these rivers, *C. ancocisconensis* is associated with large sand and cobble bars in river channels which flow through areas of unconsolidated glacial till (both morainal and outwash deposits). Unlike adults of the associated species *C. duodecimguttata* Dejean and *C. repanda* Dejean, adults of *C. ancocisconensis* are seldom found out on the open sand or cobble. Rather, the beetles spend most of their time foraging and basking within small vegetated patches, which are typically located on areas of silty sand along the bankside edge of the bar, or in sandy pockets within a larger cobble bar. Vegetation in these patches consists of low, sparse grasses, perennial herbs (including species of the genera *Conyza, Erigeron, Solidago* (all family Asteraceae) and *Monarda* (family Lamiaceae)), or low shrubs (principally *Salix* species, family Salicaceae). The adult beetles are quite wary and take flight at the slightest disturbance. Escape flights of this species are long and straight, with flights of 10 meters or more not uncommon. Such flights often take the beetles well out onto the bar, or even across the river to an adjacent bar. The brown and white coloration of this tiger beetle is strongly cryptic on the sand and cobble of its habitat, and adults are not easily located either when at rest or after they have taken flight.

In New Hampshire, I also observed (but did not survey) extensive areas of apparently suitable habitat for this species along the Pemigewasset River. Philip J. Darlington, Jr., collected large series of specimens of *C. ancocisconensis* along this river in the early twentieth century (Wilson and Larochelle 1979), and populations probably still occur there.

During a short trip to West Virginia in September, 2005, I found adults of *C. ancocisconensis* to be common along the North River in Hampshire County, a locality which was first noted by Glaser (1984). This habitat consisted of small areas of silty sand along a shallow, bedrock-dominated river channel. Adults were found basking on the sand and on the exposed bedrock. As in New Hampshire, this species was more wary and difficult to approach than either *C. duodecimguttata* or *C. repanda*, both of which were abundant along this river.

Acciavatti et al. (1992) conducted a much more extensive survey of riparian habitats in West Virginia. These authors concluded that *C. ancocisconensis* is "not uncommon and may be abundant" along the major river systems in that state.

Similar in-depth surveys have yet to be conducted in major portions of the historic range of this species. States where additional effort could be focused include Maine, New York, Pennsylvania, and Vermont. There are very few historic or recent records from Maine, although Wilson and Larochelle (1979) and Wilson and Brower (1983) indicated that *C. ancocisconensis* is likely to be widespread in the state (but see remarks on habitat alteration by Nelson and LaBonte 1989). In New York, historic records span much of the state, from Buffalo and Cazenovia in the west to the Catskills and Adirondacks in the east and north (Wilson and Larochelle 1979). Recent

work by P. Novak, W. Gall, J. Huether, and K. Will has resulted in the discovery of previously unknown populations at sites in New York such as the Zoar Valley of Cattaraugus County and Letchworth State Park (Rising 1998, K. Will, personal communication). Given the large size of New York State and the abundance of glacial till over much of its area, additional populations of *C. ancocisconensis* probably await discovery. In Pennsylvania, there are very few historic records of *C. ancocisconensis* (Wilson and LaRochelle 1979). However, I recently examined series of specimens in two major museum collections that were collected in the 1980s at sites on the Clarion River in Jefferson County, Penns Creek in Centre County, and Pine Creek in Tioga County. These records suggest a fairly broad distribution for this species within Pennsylvania. Finally, there are very few records from Vermont, although areas of apparently suitable habitat are found in the more mountainous regions of this state (Leonard and Bell 1999, Bell no date).

More comprehensive surveys in these and other states will undoubtedly provide a clearer picture of the overall conservation status of *C. ancocisconensis*. However, the evidence presented here suggests that this species is probably not rare and likely will be found at more sites than are currently known. This is not to imply that the species may not be of local or even regional conservation concern: it is evidently extirpated from Massachusetts (NatureServe 2006) and few extant populations are known from Ohio (Acciavatti 1992). While conservation actions may be appropriate in some parts of its range, overall this species is probably secure at present.

I thank Terry L. Erwin of the National Museum of Natural History, Smithsonian Institution, and Lee Herman of the American Museum of Natural History, New York, for permission to examine specimens in their care. Corinne M. Carter provided helpful assistance with the field portions of this study, while C. Barry Knisley and Michael A. Valenti provided valuable comments on the manuscript. I thank Kipling W. Will for introducing me to this tiger beetle during our graduate student days at Cornell University.

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Jonathan R. Mawdsley, *Research Associate, Department of Entomology, National Museum of Natural History, Smithsonian Institution, P.O. Box 37012, MRC 187, Washington, DC 20013-7012 U.S.A. (e-mail: mawdsley@heinzctr.org)*